## REMARKS

### *Summary of the Office Action*

In the Office Action, the Examiner rejected Claims 1-4, 7-9, 11, 15, 17-19, 25, and 32 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner also rejected Claims 1, 5, 7, 9-11, 17-25, 29, 31, and 35 under 35 U.S.C. § 112, first paragraph, for not being enabled by the specification. The Examiner also rejected Claims 1-6, 9, 11, 15, and 17-24 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Finally, the Examiner rejected 1-11, 15, and 17-36 on the grounds of nonstatutory double patenting over Claims 1-30 of U.S. Patent Number 6,632,798 and over Claims 1-30 of co-pending application 10/657,414. It is noted that the only basis of rejection for Claims 26-28, 30, 33, 34, and 36 are the double patenting rejections and for being dependent on a rejected base claim.

### *Summary of the Amendment*

Upon entry of the present Amendment, Claims 1, 3, 8, and 32 will have been amended. Additionally, Claims 2 and 4 will have been deleted and new Claims 37-71 will have been added. As such, Claims 1-11, 15, and 17-71 remain currently pending. By the present Amendment and Remarks, Applicant submits that the rejections have been overcome and respectfully requests reconsideration of the outstanding Office Action.

### *Applicant's Response*

1. Section 112, Second Paragraph, Rejection of Claims 1-4, 7-9, 11, 15, 17-19, 25, and 32

The Examiner submits that, "It is not clear in the claim 1 from the claim language of 'involves' treating a medical condition what would have been the medical condition that was treated that is affected by chemopreventive?" *Office Action, Page 3.* The Examiner also submits that a pharmaceutical composition by default contains a carrier or diluent and

therefore Claims 2 and 4 are not further limiting. *Office Action, Page 3.* Finally, the Examiner contends that Claims 3, 8, 11, 15, and 32, "contain language 'effective amount' vague and indefinite and does not clearly specify what is meant by effective amount' as being effective for inhibition." *Office Action, Page 3.*

In response, Applicant has amended Claim 1 to recite, inter alia, "A method for treating cancer in a subject..." Applicant respectfully submits that this amendment has removed any confusion and that the claim is now directed toward treating cancer. Additionally, Applicant has cancelled Claims 2 and 4. Finally, Applicant has amended Claims 3, 8, and 32 to recite, inter alia, "a therapeutically effective amount." Claims 11 and 15 already contain language reciting a "therapeutically effective amount" and are believed to have been improperly grouped with Claims 3, 8, and 32, since Claim 1 which contains similar "therapeutically effective amount" language was not rejected on this basis. As such, Applicant respectfully submits that the claims as currently amended have overcome the § 112, second paragraph, rejections and are now in condition for immediate allowance.

2. Section 112, First Paragraph, Enablement Rejection of Claims 1, 5, 7, 9-11, 17-25, 29, 31, and 35

The Examiner admits that the specification is enabling for inhibiting colon cancer cell migration *in vitro* and *in vitro* modulation of unregulated cell growth. *Office Action, Page 3.* However, the Examiner then contends that the specification does not reasonably provide enablement for inhibiting colon cancer cell migration *in vivo* and *in vivo* modulation of unregulated cell growth with the claimed compound. *Office Action, Page 3.* The Examiner further submits that the Applicant has not presented any *in vivo* results and discusses the enablement issue in light of the eight *Wands* factors. *Office Action, Page 4.*

In response to this, Applicant attaches the Declaration of co-inventor Hamdi K. Hamdi, Ph D. In the Declaration, the Applicant submits that due to the unique characteristics of the presently disclosed and claimed compounds, there is a significant correlation between *in vitro* and *in vivo* results, unlike with the prior art methods of screening anti-cancer drugs. In particular, the compounds of the present invention are non-toxic and are therefore able to be administered to the patient in a sufficiently high dosage to treat the cancer cells.

Furthermore, the compounds of the present invention are able to treat all types of cancer cells due to the fact that these compounds target the cytoskeleton, which is present in all cancer cell types. Additionally, the Declaration presents *in vivo* results that further show the efficacy of the present compounds. These positive *in vivo* results do not present new matter, but rather show the effects of the compounds that were disclosed in the specification.

In regard to the nature of the invention, the Examiner submits that, "the nature of the invention is a method for treating a medical condition which involves cancer in a subject comprises administering the instant pharmaceutical composition to a patient (mammal) in need thereof," and that the claims recite that any medical conditions involving cancer are intended. *Office Action, Page 4.* The Examiner also submits that the nature of the invention is treating all medical conditions associated with cancer, which the Examiner contends is extremely broad. *Office Action, Page 8.* The Examiner finally states that there is hardly a cure for pancreatic cancer. *Office Action, Page 8.*

As previously discussed, Claim 1 has been amended to recite, "A method for treating cancer in a subject..." As such, the claims are now directed to treating cancer, and not any medical condition involving cancer. Furthermore, as discussed in the Applicant's Declaration, attached hereto, by targeting a universal component of cancer cells, the cytoskeleton, the claimed compounds are able to treat all types of cancer. In particular, pancreatic cancer, which the Examiner singled out as being particularly difficult to treat, has been shown clinically to regress with treatment of the claimed compounds, as is presented in Applicant's Declaration.

In regard to the state of the prior art, the Examiner submits that screening *in vitro* and *in vivo* are required in order to determine which compounds can treat which specific types of cancer. *Office Action, Page 5.* The Examiner therefore concludes that the existence of these obstacles prevents one of ordinary skill in the art from accepting any therapeutic regimen on its face. *Office Action, Page 5.* The Examiner also asserts that, "in the absence of a showing of correlation between the claimed compound as capable of treating medical condition which involves inhibiting colon cancer call migration, modulation of unregulated cell growth *in*

*vivo* as well as *in vitro*, one of ordinary skill in the art is unable to fully predict possible results from the administration of the compounds due to the unpredictability of the role of the claimed compound *in vivo*." *Office Action, Page 5.* In order to show the unpredictability in the art, the Examiner cites Gura as teaching, "that since formal screening began in 1955, many thousands of drugs have shown activity in either cell or animal models but that only 39 have actually been shown to be useful for chemotherapy." *Office Action, Page 5.* The Examiner also cites Johnson et al as teaching, "the use of 39 agents *in vivo* activity in a particular histology in a tumor model did not closely relate to activity in the same human cancer." *Office Action, Page 6.* The Examiner therefore concludes that, "in the absence of experimental evidence, no one skilled in the art would accept the assertion that the claimed compound composition could be predictably used as an anti-cancer agent for any type of medical conditions which involves cancer." *Office Action, Page 6.*

As discussed in the attached Declaration of Hamdi K. Hamdi, the uncertainty in the art which the Examiner discusses is due, at least in part, to the inefficiencies of the prior art screening methods and not due to the complexity of cancer treatment. As further discussed, the targeting of a universal component of cancer cells, the cytoskeleton, allows for a high level of confidence in the *in vivo* activity of the compounds based on the *in vitro* results. Furthermore, the attached Declaration provides examples of clinical results using the claimed compounds. These clinical results do not add new matter, but merely show the beneficial use of the compounds as was disclosed and claimed in the original application.

In regard to the quantity of experimentation needed, the Examiner concludes that it is undue, stating that one would first need to determine the type of cancer to be treated, what dosage of the claimed compounds would be suitable without being toxic to the patient. *Office Action, Page 6.*

As discussed above, and in the attached Declaration, since the claimed compounds target a universal structure present in cancer cells, the cytoskeleton, there is no need for one to determine the type of cancer to be treated and/or whether administration of the compounds would be toxic to the patient.

In regard to the level of predictability in the art, the Examiner asserts that, "there is no absolute predictability even in view of the seemingly high level of skill in the art." *Office Action, Page 6.* The Examiner further submits that the mode of action *in vitro* is different from the mode of action *in vivo* and that animal models do not necessarily correlate to success in humans. *Office Action, Pages 6-7.* The Examiner finally submits that, "there is a vast range of forms that [cancer] can take, causes for the problem, and biochemical pathways that mediate cancer reaction. There is no common mechanism by which any, or even most, cancer arise." *Office Action, Page 7.* The Examiner also submits that there is currently no completely effective therapy for treating all cancers with one compound, implying that therefore Applicant's invention cannot work as claimed. *Office Action, Page 9.*

As discussed above, and more fully in the attached Declaration, the fact that human results do not always correlate with *in vitro* or even *in vivo* models are due to the problems with the prior art screening methods and are not necessarily a consequence of all potential anti-cancer drugs. Applicant agrees that cancer is a complicated disease with a vast variety of factors, many of which are specific only to certain types of cancer; however, there are also universal attributes to cancer cells, such as the cytoskeleton, which can be targeted in order to treat all types of cancer with a particular compound. The fact that there is currently no completely effective therapy for treating all cancers with one compound merely serves to show the extreme novelty and non-obviousness of Applicant's claimed invention.

In regard to the amount of direction and guidance provided by the inventor, the Examiner contends that none is present in the specification and that the gap between *in vitro* activity and *in vivo* activity requires thorough and compelling *in vivo* data. *Office Action, Page 7.* The Examiner further comments that the examples shown will not enable the treatment of any types of cancerous diseases. *Office Action, Page 9.*

Applicant respectfully submits that the specification does provide sufficient guidance to allow one to utilize the claimed compounds in order to treat cancer in a patient. Although *in vivo* data was not provided in the specification, the method of using the claimed compounds was disclosed and the *in vivo* results presented in the attached Declaration further show that the claimed methods work, as was disclosed in the application.

In regard to the existence of working examples, the Examiner asserts that none are presented in the application. *Office Action, Page 7.*

Applicant respectfully submits that the specification discloses working *in vitro* examples of the claimed method which show a decrease in cell growth. By following the specification, one skilled in the art could utilize the claimed methods to treat cancer in a patient.

In regard to the breadth of claims, the Examiner submits that they are extremely broad due to encompassing all types and forms of cancer. *Office Action, Page 7.*

Because the compounds disclosed and claimed target a universal component of cancer cells, the cytoskeleton, the compounds are useful in treating all types of cancer. Although these claims are broad, the compounds' method of targeting cancer cells is equally broad. Since the cytoskeleton is present in all cancer cells, a compound that targets the cytoskeleton would likewise target all cancer cells.

In regard to the level of ordinary skill in the art, the Examiner admits that the level of ordinary skill in the art is high, but continues to assert that the unpredictability in the pharmaceutical art requires individual assessment for physiological activity by *in vitro* and *in vivo* screening to determine which compounds would treat which diseases. *Office Action, Page 7.*

As discussed above, and in the attached Declaration, the unpredictability in the art is due to the inefficiencies of the prior art screening methods. By targeting the cytoskeleton, the disclosed compounds are able to target all types of cancer cells. By being non-toxic, the disclosed compounds are able to be administered at a sufficiently high level to treat the cancer cells. As such, the unpredictability of the art is minimized by the present compounds and methods.

For the above reasons, and the reasons discussed in the attached Declaration of Hamdi K. Hamdi, the claims have been shown to be supported by the specification as filed.

As such, any § 112, first paragraph, rejection based on lack of enablement cannot now stand. Applicant respectfully requests that the Examiner withdraw all such rejections and indicate allowance of at least Claims 1, 5, 7, 9-11, 17-25, 29, 31, and 35.

3. Section 112, First Paragraph, Written Description Rejection of Claims 1-6, 9, 11, 15, and 17-24

The Examiner merely asserts that, "there is no description in the specification for treatment of a representative types of cancers listed in the above claim." *Office Action, Page 11.*

Applicant respectfully submits that as discussed above, and in the attached Declaration of Hamdi K. Hamdi, Applicant's invention has been shown to be effective for the treatment of cancer, and would therefore include treatment of the representative types of cancer recited in the above-referenced claims. As such, Applicant believes that Claims 1-6, 9, 11, 15, and 17-24 are in condition for allowance and respectfully requests early notice of such.

4. Double Patenting Rejections of Claims 1-11, 15, and 17-36

The Examiner submits that the claims are rejected on the ground of nonstatutory double patenting over Claims 1-30 of U.S. Patent No. 6,632,798 and over Claims 1-30 of the co-pending application 10/657,414.

The Applicant hereby submits terminal disclaimers in regard to the above-referenced patent and patent application. Applicant respectfully submits that the double patenting rejections have thereby been overcome and should now be withdrawn.

Furthermore, it is noted that after the filing of said terminal disclaimers, the only basis of rejection for Claims 26-28, 30, 33, 34, and 36 is the fact that they depend from rejected base claims. Applicant respectfully submits that the base claims have been shown above to be patentable. However, should the Examiner disagree, Applicant reserves the right to amend these claims into independent form, in which case there would be no outstanding rejections and said claims will be in condition for allowance.

5. New Claims 37-71

Applicant respectfully submits that new Claims 37-71 are fully supported by the specification as filed. Furthermore, these claims are considerably narrower than the originally submitted claims and are likewise believed to be in condition for immediate allowance. These claims conform to the claims in the related PCT application (i.e., PCT/US03/38564, which received a favorable Preliminary Examination Report. In particular, the Preliminary Examination Report found that the claims have novelty, an inventive step, and industrial applicability. As such, Applicant respectfully requests early notice of the allowance of at least these claims.

***Conclusion***

Applicant respectfully submits that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. § 112 and respectfully requests that the Examiner indicate allowance of each and every pending claim of the present invention.

In view of the foregoing, it is submitted that the Section 112 rejections have been overcome. Applicant respectfully submits that the amendment to the claims, Applicant's Remarks, and the submitted Declaration of Hamdi K. Hamdi have rendered the Examiner's rejections moot.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate. If any additional fee is required, please charge Deposit Account No. 19-4330.

Respectfully submitted,

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